

Figure 1 - Schematic of Transdermal Optical Monitoring System

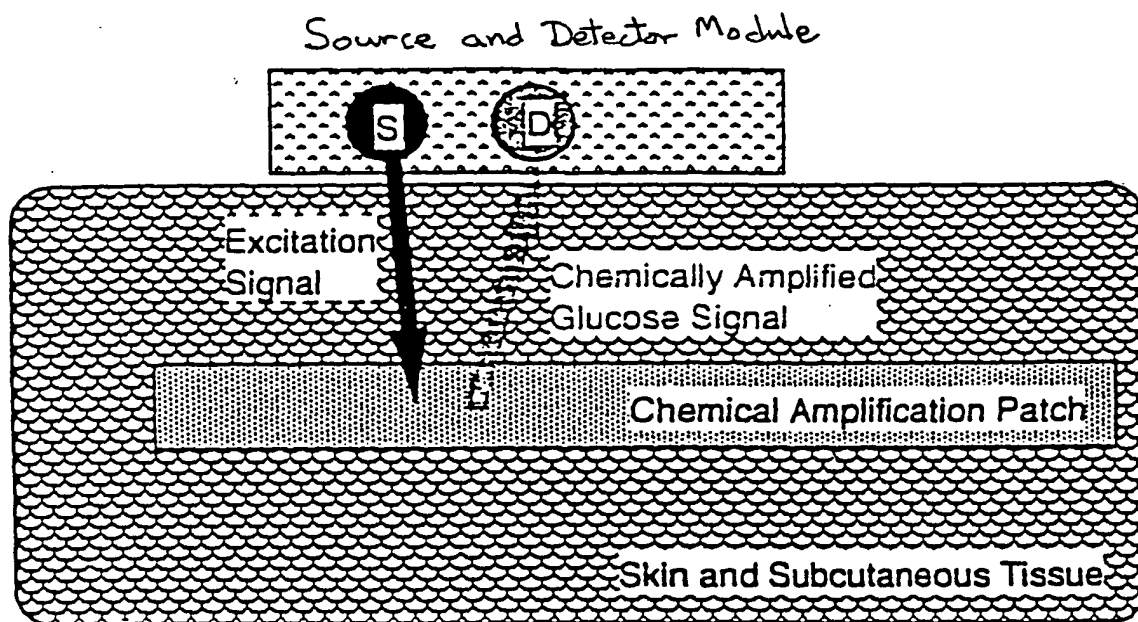
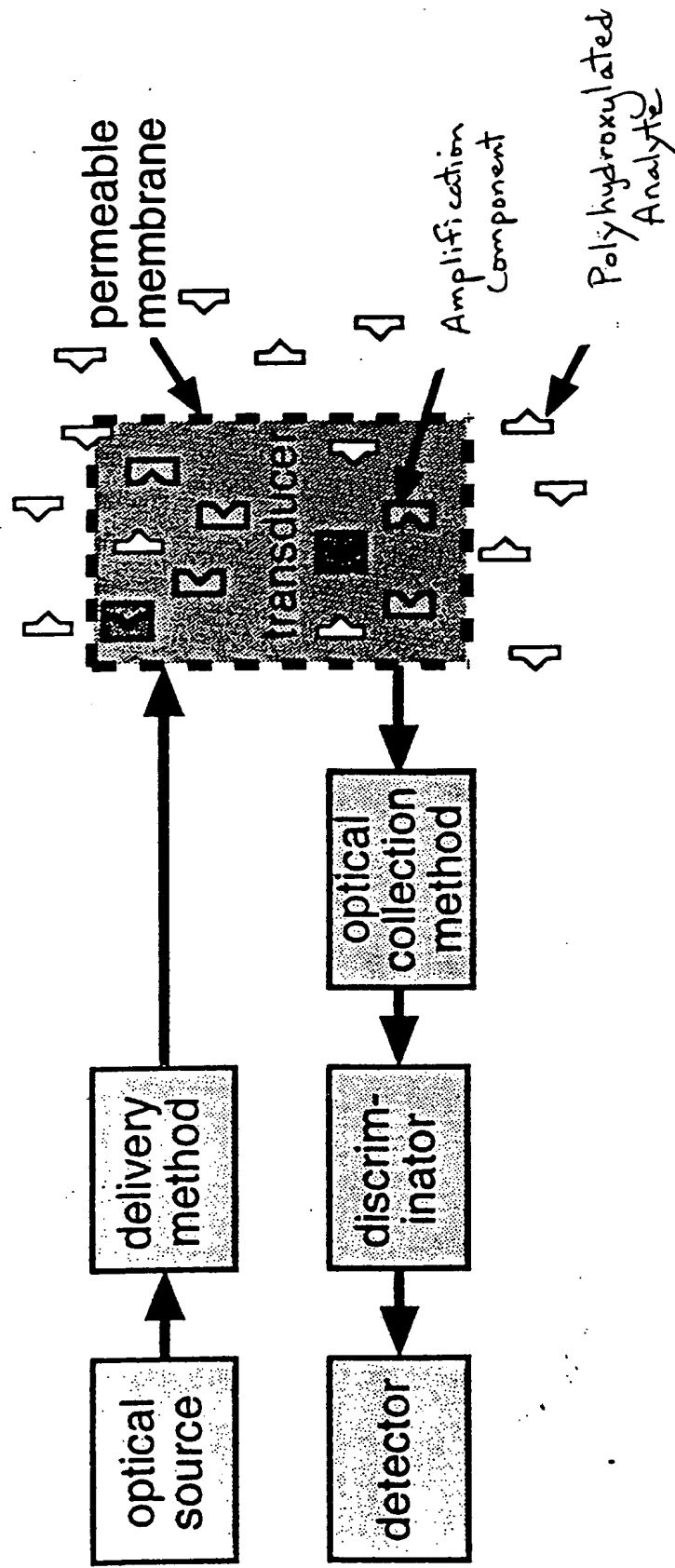


Figure 2

Chemically-amplified optical sensors

## Chemically-amplified optical sensors



Amplification components have a high selectivity for the target analyte to be assayed

Reactions with the target analyte produce a large change in the optical properties of the amplification component

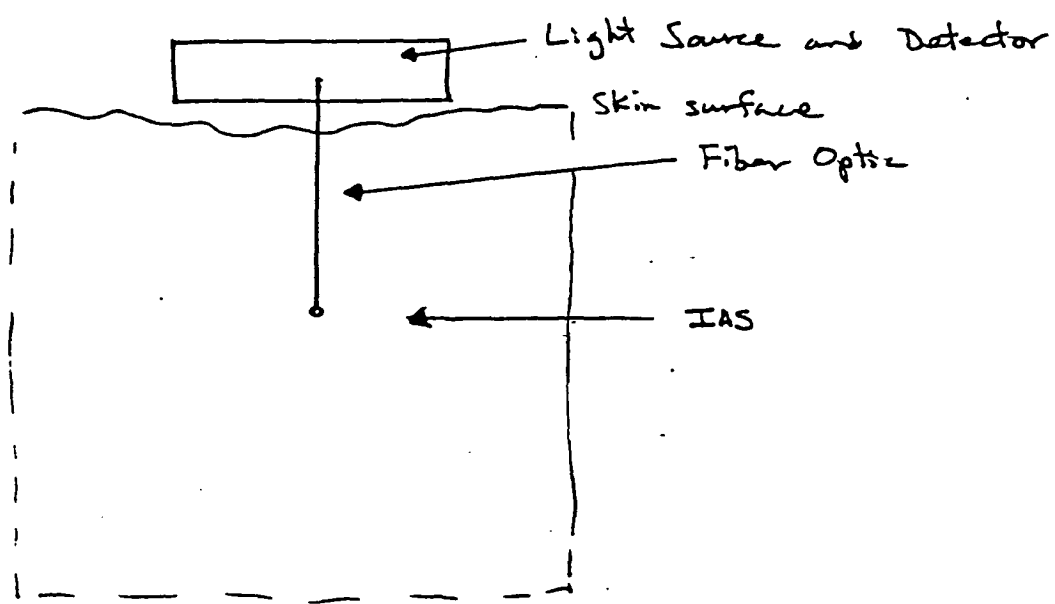


Figure 3

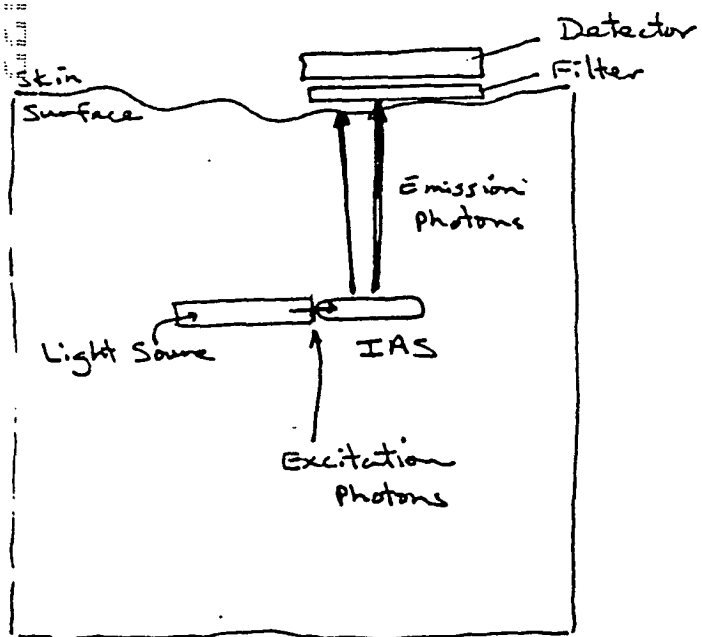


Figure 4

Figure 5

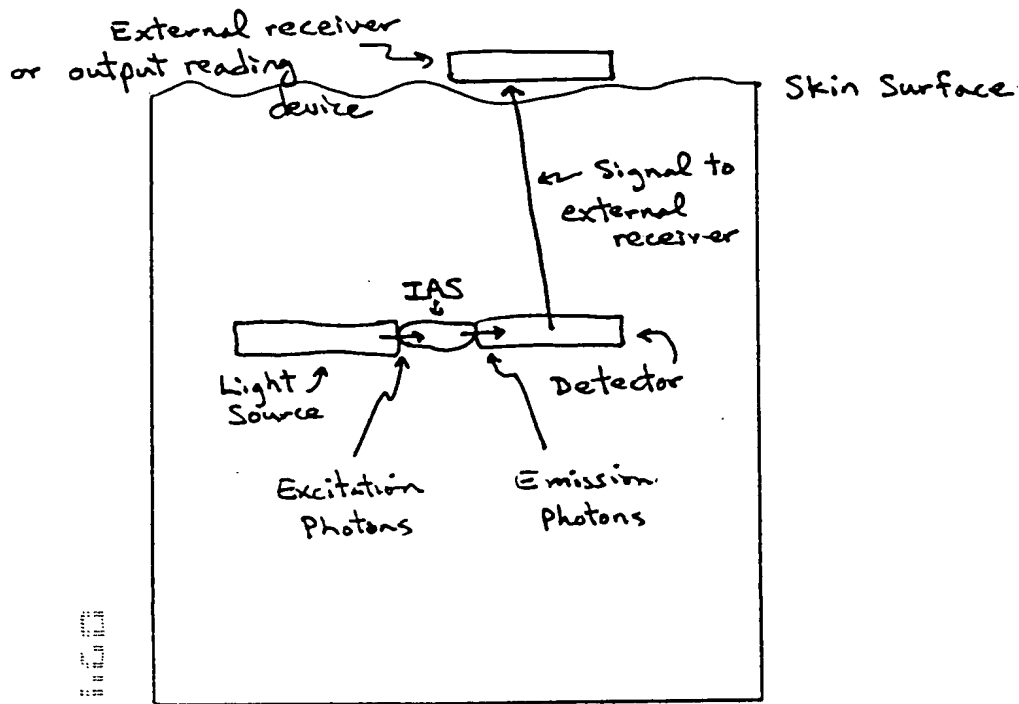


Figure 6

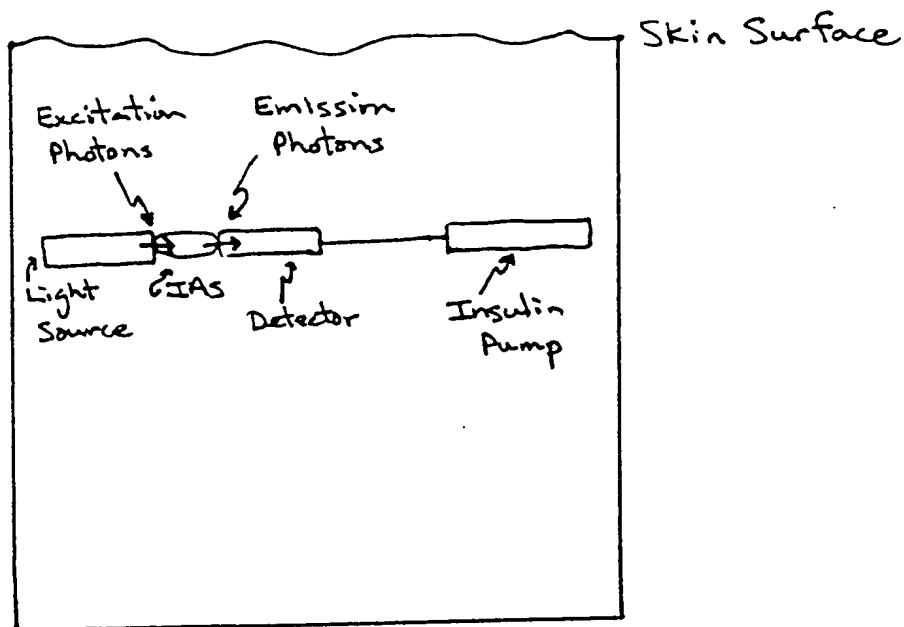
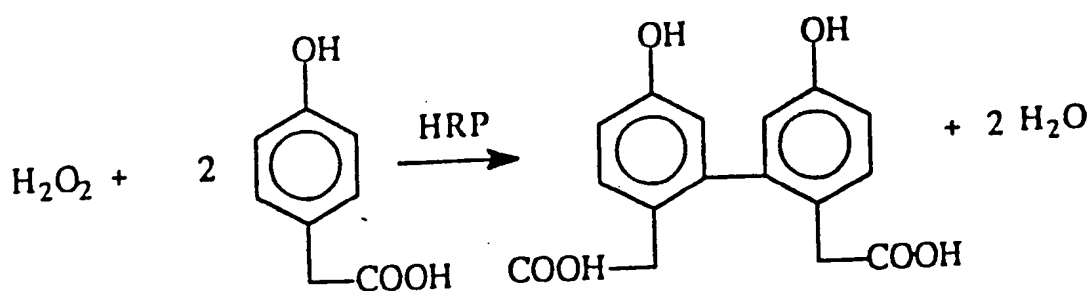
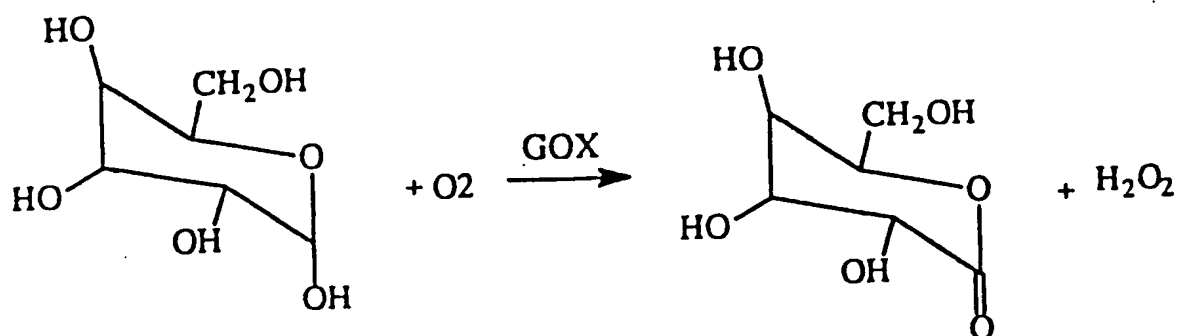


Figure 7

-- Glucose to Hydrogen Peroxide Conversion  
Followed by Optical Detection



# Glucose Calibration Curve

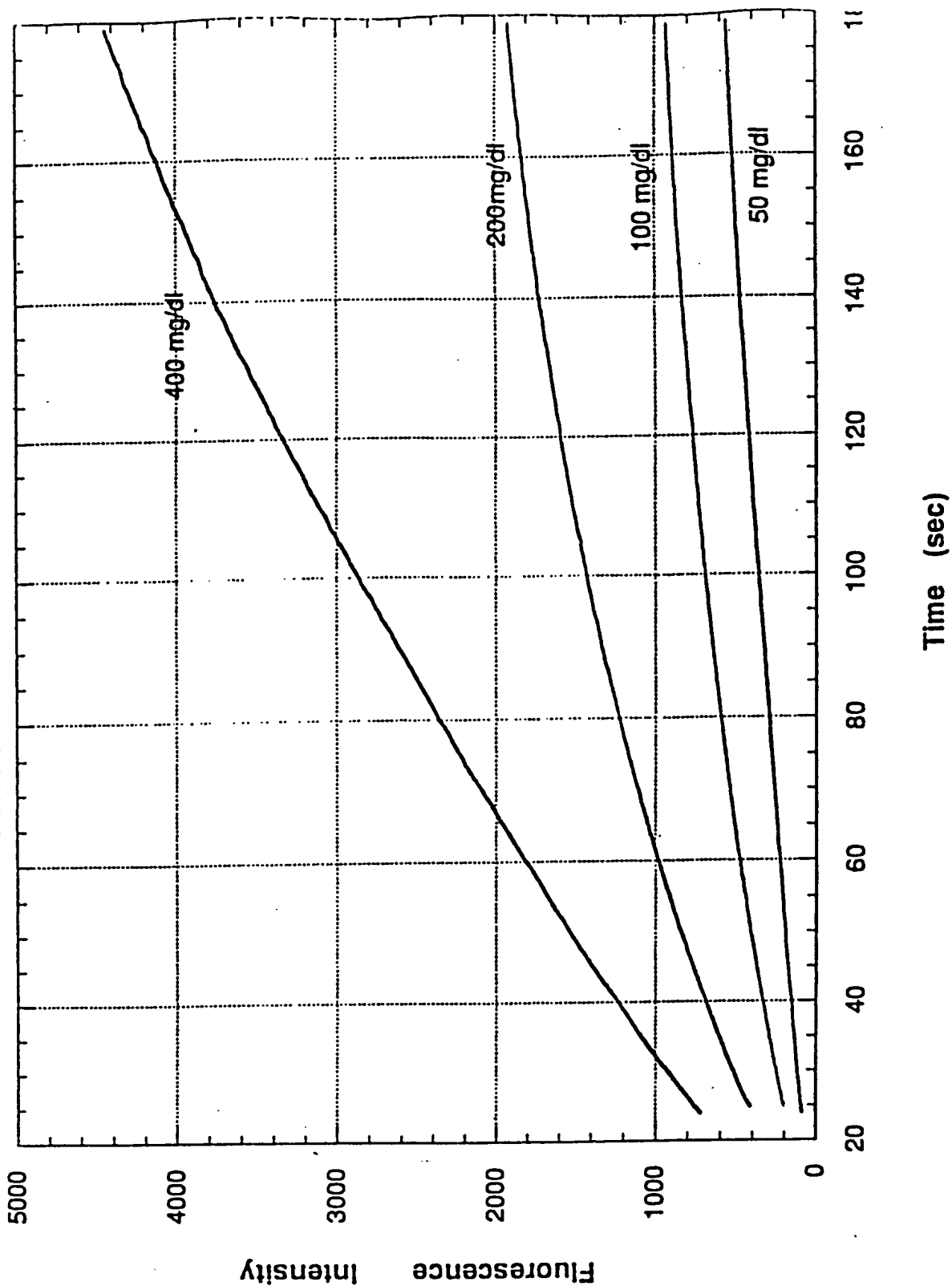


Figure 9 -- Concanavalin A Fluorescence  
with Glucose

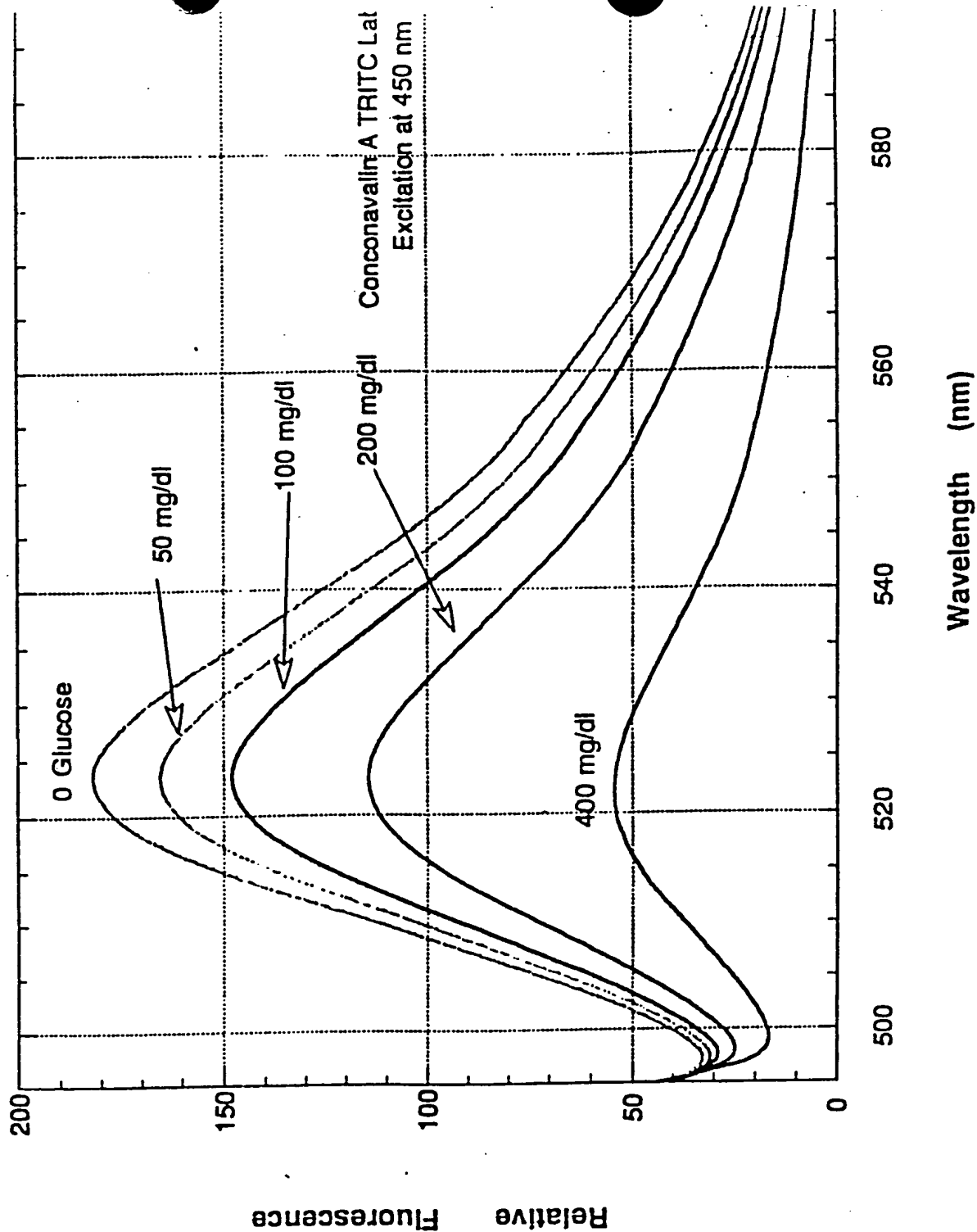


Figure 10

## Reversible Boronate Binding Chemistry

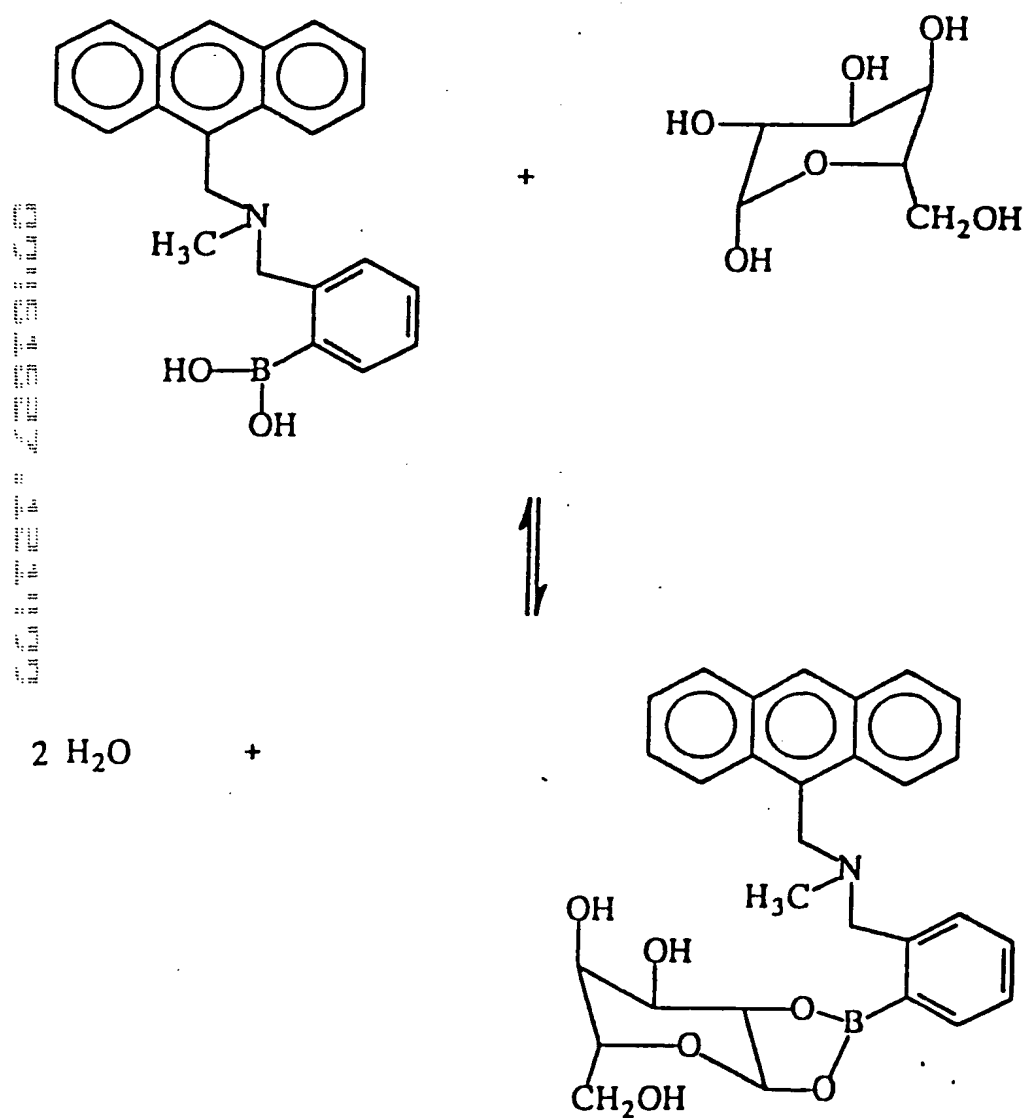
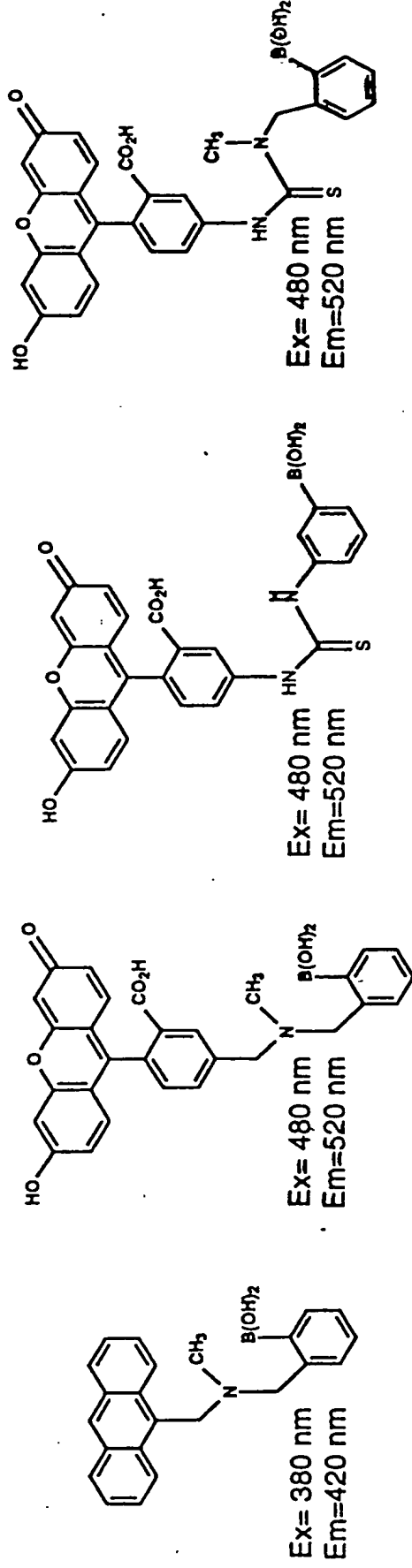




Figure 11

# glucose recognizing molecules that fluoresce at longer wavelengths

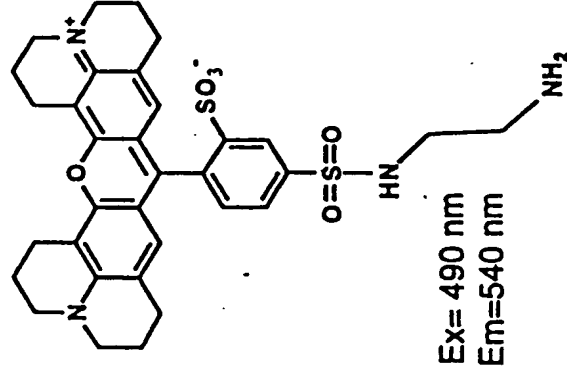


anthracene

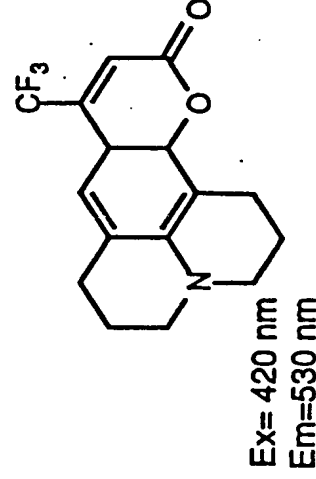
fluorescein-1

fluorescein-2

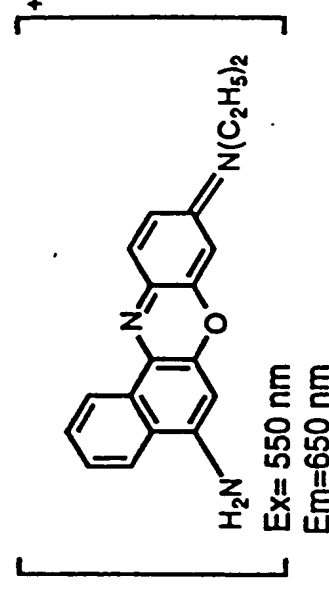
fluorescein-3



rhodamine-1



coumarin 153



nile blue  
(oxazine)

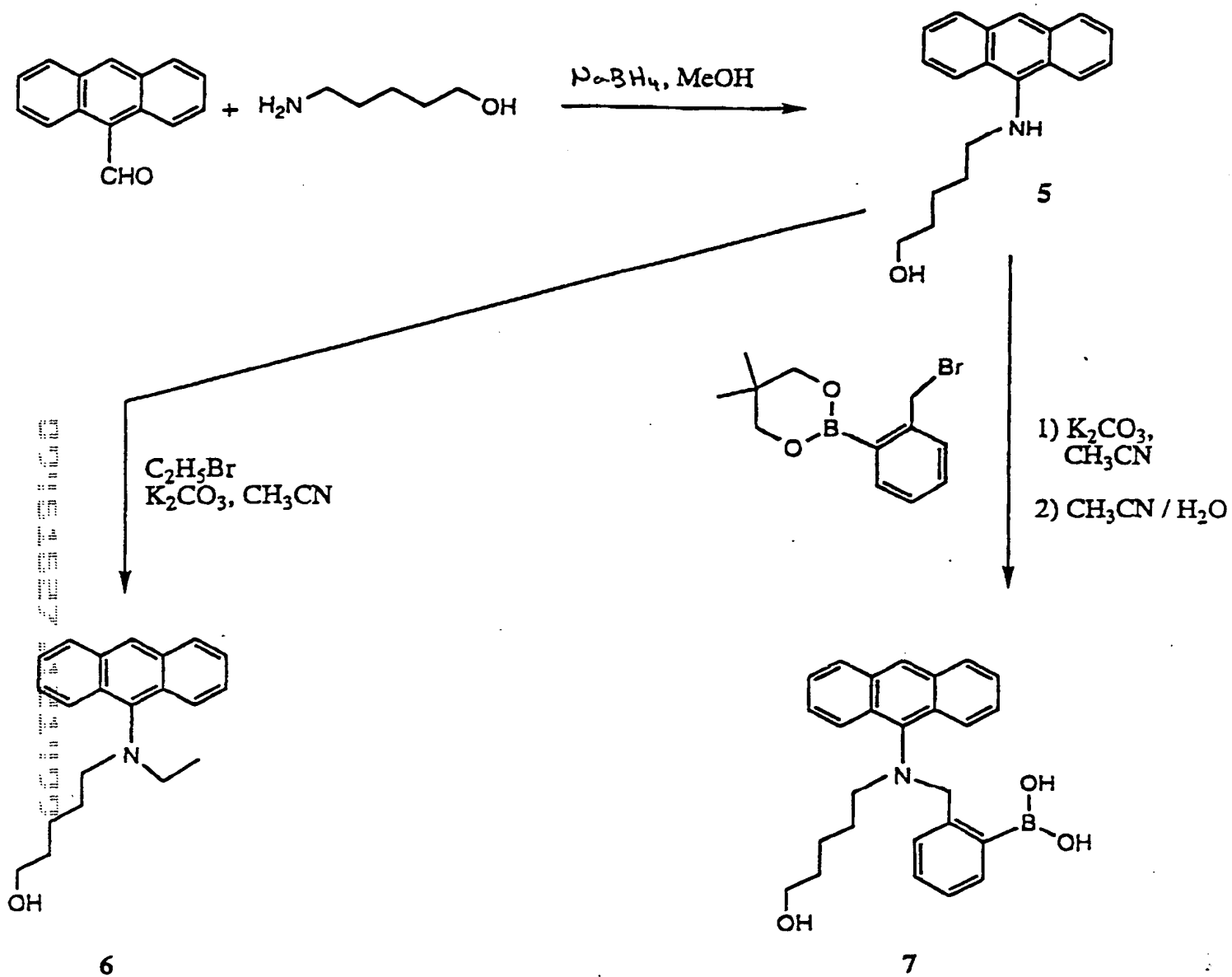


Figure 12

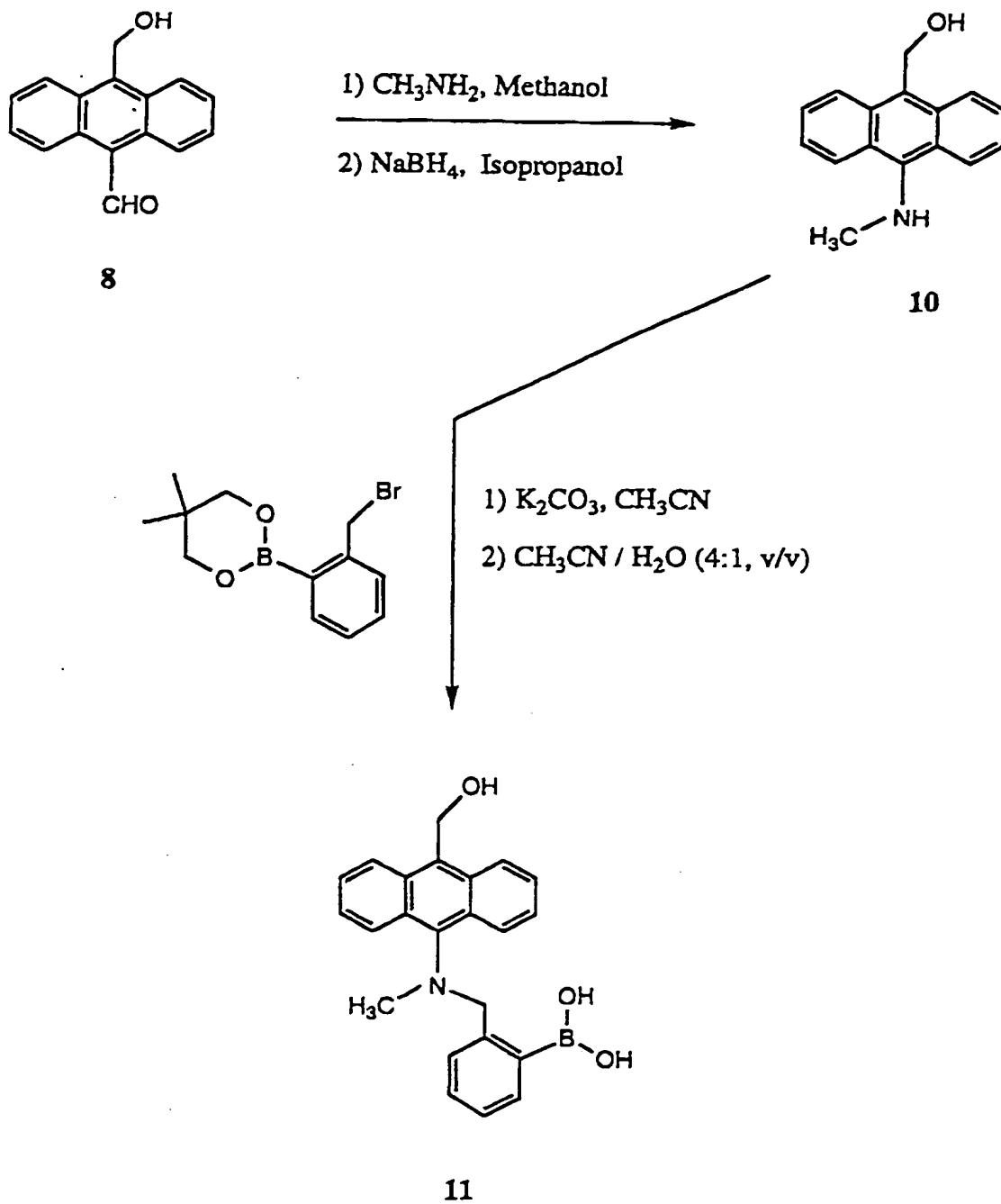
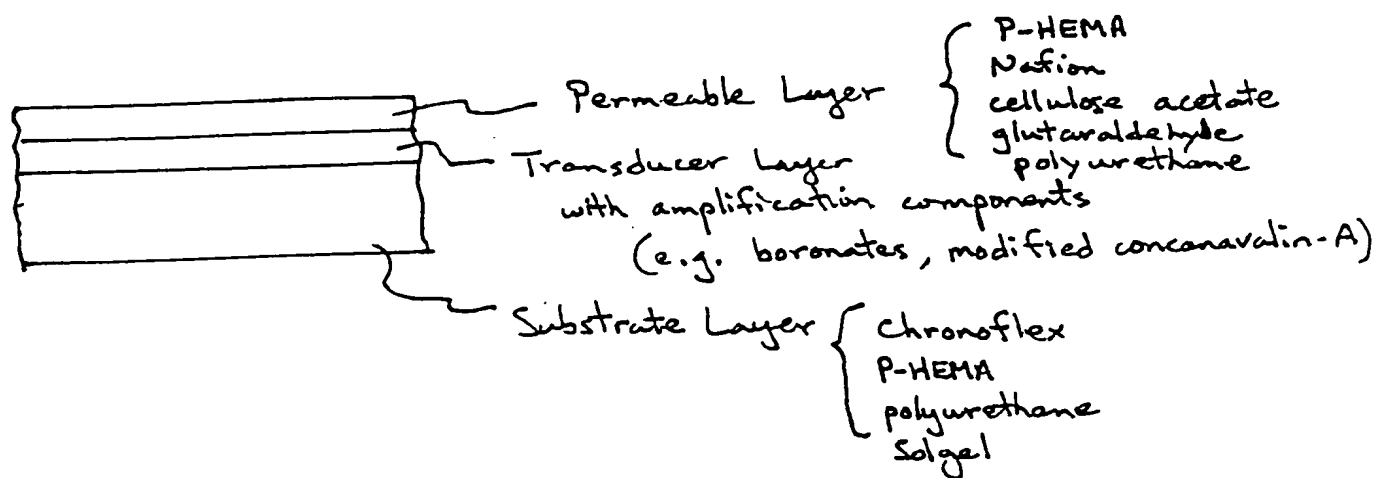
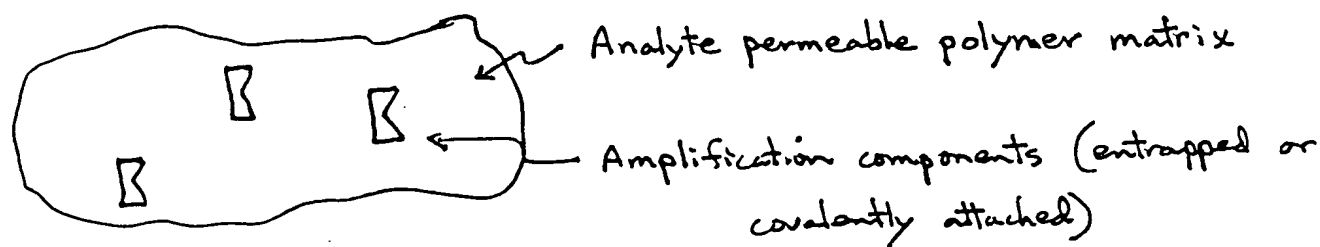


Figure 13

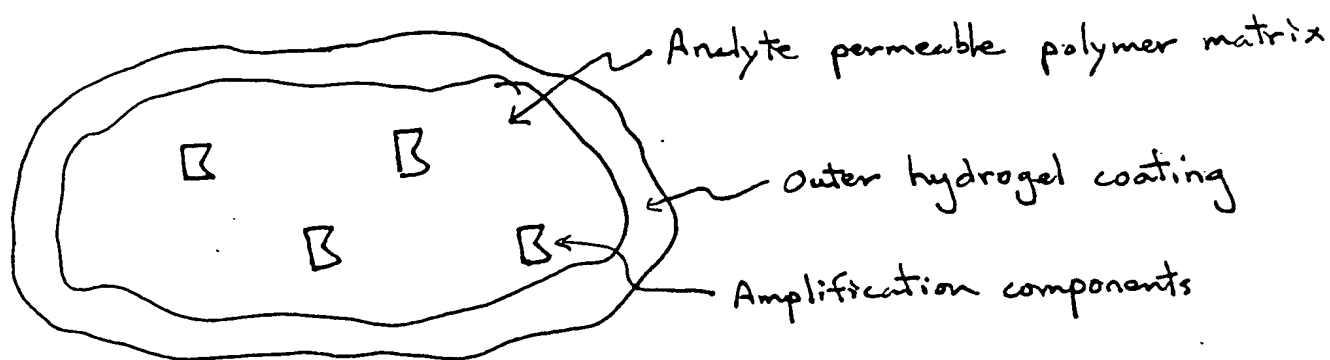
Figure 14



14A

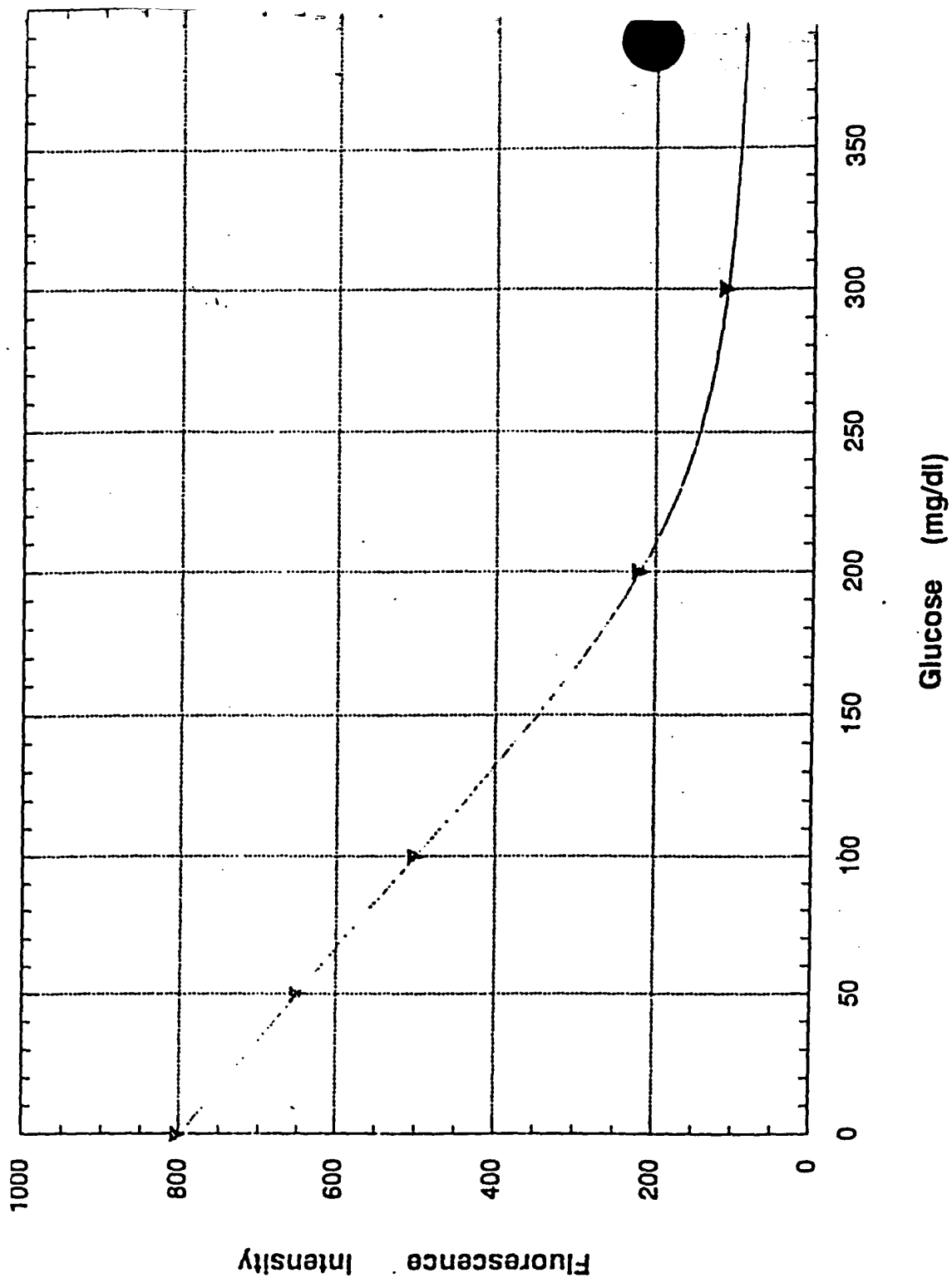


14B



14C

**Figure 15 -- Fluorescence Quenching of FABA by Glucose**



# Reversible fluorescence of a glucose-recognizing fluorescent molecule, anthracene-boronate

the relevant clinical range (0-400 mg/dl)

Wavelength

regime

—380 nm in

—420 nm out

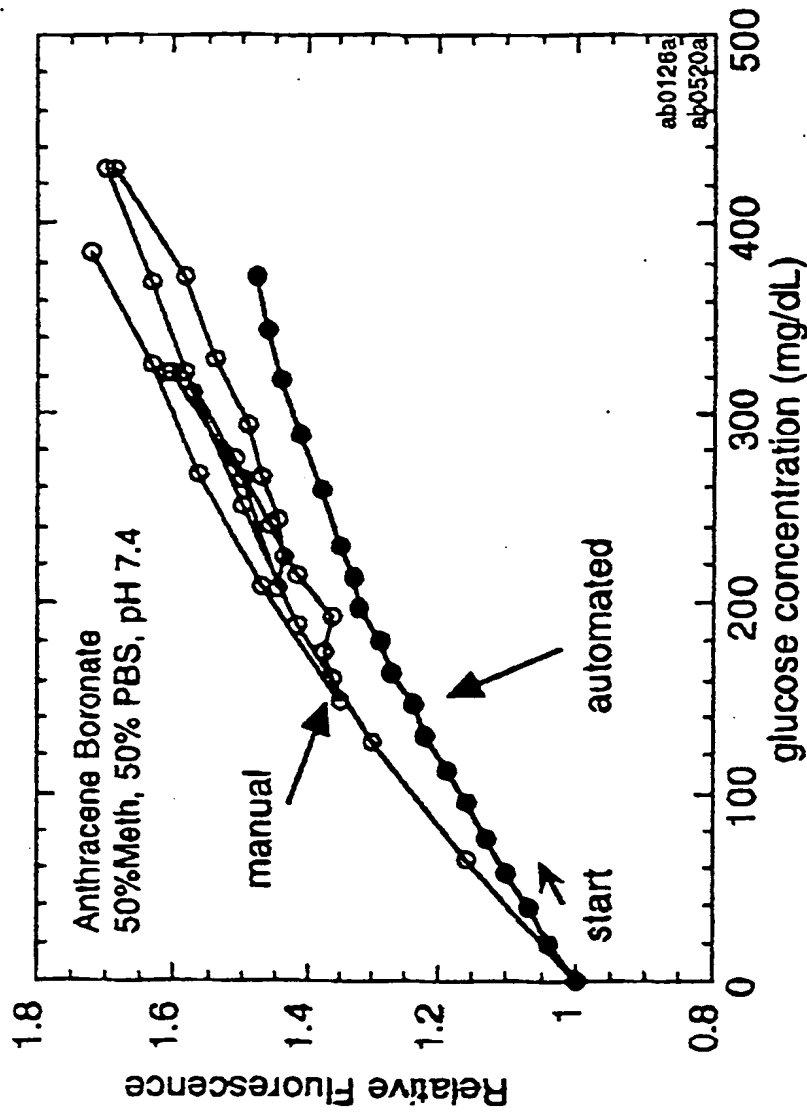


Figure 16